

# Enablers and barriers English secondary schools face in promoting healthy diet and physical activity behaviours

Camilla McHugh \*, Jenny Lloyd, Stuart Logan, and Katrina Wyatt

Department of Child Health, The University of Exeter College of Medicine and Health, South Cloisters, St Luke's Campus, Exeter EX1 2LU, UK

\*Corresponding author. E-mail: c.a.mchugh@exeter.ac.uk

## Summary

This study sought to understand the current challenges mainstream secondary schools in England face in creating a health promoting school culture for diet and physical activity behaviours. An in-depth qualitative case study of two purposely selected state-funded schools, including interviews with teachers, observations of school activities including meal breaks and a qualitative survey with parents was done. Inductive thematic analysis was used to explore emerging themes. Additional interviews with the leadership team from four further schools were used to develop and refine emerging themes. Four main themes emerged from the data: competing pressures, school environment, personnel and policy. Results demonstrate that schools recognize they have role to play in promoting healthy lifestyle behaviours to pupils; however, several significant barriers were identified such as lack of government support and regulation, school structures and organization, focus on core subjects, business-run canteens and lack of family and community engagement. Given the importance of maintaining a healthy weight throughout the life course, schools have an important role to play in creating healthy environments in which students can easily make a healthy choice. Future school promotion initiatives need to consider addressing the barriers that schools face by working with them and the communities in which they are embedded.

## Lay Summary

There has been little research done in secondary schools to understand how to promote healthy lifestyle behaviours to adolescents (secondary schools provide secondary education for students aged 11–18 years). COVID-19 has brought the importance of maintaining a healthy weight back into sharp focus and schools are an ideal setting to educate and support young people in making healthy diet and activity choices. This research sought to understand how important school staff thought creating a health-promoting culture in schools was, how they could create such a culture and what support they had or needed to do so. From interviews with school staff, observing school activities and a questionnaire to parents, we found that schools and parents believe that schools have a role to play in supporting healthy diet and physical activity behaviours although they identified many pressures that prevent making health promotion a priority; these include time and resources as well as a lack of government policy. The importance of having a head teacher with a belief in the benefits of a healthy

lifestyle was recognized. The way secondary schools are structured in England makes a joined-up approach difficult and requires central planning and coordination. More support, including resources and policy commitments, are needed to support secondary schools to create a healthy school environment.

**Key words:** health promotion, adolescents, schools, healthy lifestyle choices

## INTRODUCTION

The COVID-19 pandemic has emphasized the importance of maintaining a healthy weight (Ho *et al.*, 2020) and the need to explore new ways to address increasing inequalities associated with an amplified burden of non-communicable diseases (Hanlon *et al.*, 2011, 2012; Davies *et al.*, 2014). Globally, 340 million children and adolescents are considered overweight or obese (The World Health Organisation, 2020) and evidence suggests that many are not meeting World Health Organisation (WHO) guidelines for diet and physical activity (PA) (The World Health Organisation, 2014, 2015, 2018). In England, the prevalence of childhood obesity is 20.2% by the end of primary education (11 years) (NHS Digital, 2019a) and with the majority of adults now estimated to be overweight or obese, ways of addressing and preventing overweight are needed (NHS Digital, 2019b).

Writing as the Chief Medical Officer for England in 2014, Dame Sally Davies *et al.* suggested that to support health behaviours, a new collaborative approach was needed, which involves a range of stakeholders to create the conditions where healthy behaviours are valued and incentivized, the healthy choice is the easy option and factors that create an unhealthy culture are minimized (Davies *et al.*, 2014). Given that schools have universal reach, they are ideal settings to support young people's lifestyle choices and the WHO Health Promoting School (HPS) framework outlines a whole-school approach to supporting healthy behaviours, which has shown promise in improving children's diet and PA (Langford *et al.*, 2015b; Brown *et al.*, 2019; Mchugh *et al.*, 2020). This framework aims to foster health promotion in the school curriculum, environment, ethos and by engaging with families and the community in which a school is embedded. However, to date childhood obesity prevention research has focused mainly on early years and primary school settings, with little research conducted in the secondary school environment (Mchugh *et al.*, 2020). Qualitative work with adolescents about the main influences on their lifestyle choices identified schools as influential environments for health promoting behaviours, with young people suggesting that schools

could do more to educate and support them in making healthy diet and PA choices (Mchugh *et al.*, 2019; Browne *et al.*, 2020).

In 2013, the UK Government published The School Food Plan (published by the Department for Education, the School Food Plan sets out 17 actions to support head teachers transform what children eat in schools and how they learn about food), which provided ideas and resources on creating a better eating environment for pupils (Dimbleby and Vincent, 2013). However, the link between health and attainment (Langford *et al.*, 2015a) is not reflected in education policy and there is no assessment within the education framework, Ofsted (Ofsted, 2019), on how schools promote lifestyle choices to students. Moreover, this disconnect seems to be widening, with the Department of Education calling for there to be less reliance on schools to address public health issues (Department for Education, 2010).

State-funded schools in England have undergone significant changes in their governance and autonomy over the last 5 years with 72% of secondary schools converting to academies (academy schools are state-funded schools in England which are directly funded by the Department for Education and independent of local authority control) (National Audit Office, 2018). Becoming an academy takes the schools out of local authority control and offers schools more autonomy in food provision and meeting government food standards (UK Government). With the lack of policy and regulatory frameworks to support healthy lifestyles in schools, there is a need to understand how best to support secondary schools in implementing a whole-school approach to creating a HPS. This research aimed to comprehend ways to encourage and support secondary schools in England to promote healthy diet and PA choices to their students.

## METHODS

An in-depth case study approach (Yin, 2017) was used with two schools purposefully sampled to represent the average in England of pupils eligible for Free School Meal (FSM) provision (as an indicator of deprivation). Staff who had a role in health education, PA or food

provision were identified by the head teachers and invited to take part in an interview. Interviews ( $n=11$ ) were conducted in 2018–19 in the school setting using a semi-structured topic guide; they were recorded and transcribed verbatim. Observations ( $n=4$ ) of food service were conducted at lunch and break times. To gain the perspective of parents whose children had newly transitioned to secondary school, a qualitative questionnaire was circulated by the schools to parents of 11–13 year old pupils ( $n=139$ ). To see if emerging themes were broadly representative of schools in the area, a convenience sample of leadership staff ( $n=4$ ) from local secondary schools were subsequently interviewed using the same topic guide. Table 1 describes the school characteristics. NVivo 11 was used to manage the data and inductive thematic analysis undertaken to explore evolving themes across the data (Braun and Clarke, 2006). The Consolidated Criteria for Reporting Qualitative Research guidelines was used in the reporting of this study (Tong *et al.*, 2007).

## RESULTS

Both school staff and parents felt that schools had an important role to play in creating a health promoting environment. A number of challenges that affected this being the schools' core focus were identified by school staff, including the way schools operate, financial and time constraints and competing priorities. Four main

themes arose from the data (Figure 1), and direct quotes are used to illustrate a theme and place it in context.

### Competing pressures

Staff described the need for schools to be reactive to pressing internal or external challenges leaving little capacity to be taking the initiative around healthy life-style behaviours.

*'...but I think we do need to be reactive. And I think that is right. So if, like the drugs thing... And you've got to react... And I think, yes, it would be great to be proactive on everything...'* (Staff CS2)

Staff identified that healthy lifestyles promotion cannot take precedence as it is not aligned with the central aims of schools which is primarily the teaching of academic subjects and gaining good exam results.

*'... Year 10s and 11s [GCSE students (General Certificate of Secondary Education is an academic qualification in a particular subject taken at age 16)] are spending lots of lunchtimes doing work instead of going out and doing physical activity because as a school it's important for them to get the exam grades and we are measured on that, we are not measured on how happy and healthy our children are, unfortunately, because if we were then... so because you can't equate it to a number then Ofsted aren't necessarily as interested...'* (Staff, CS1)

**Table 1:** School characteristics

	Case study 1	Case study 2	Extra 1	Extra 2	Extra 3	Extra 4
Setting	Rural village	Urban	Urban	Urban	Urban	Rural town
Mainstream secondary	Age 11–18	Age 11–16	Age 11–18	Age 11–18	Age 11–16	Age 11–19
Total pupils on roll (2018–19) <sup>a</sup>	868	835	943	1373	907	443
% FSM <sup>b</sup>	22.0%	31.3%	19.3%	33.8%	30.0%	26.9%
Academy conversion year	2012	2013	2011	2012	2020	2010
In/out house catering	Procured catering service	Private Finance Initiative school	In house	In house	Procured catering service	In house
Online food monitoring	Biometric food monitoring <sup>1</sup>	None	None	Biometric food monitoring	None	None
Number staff interviews	5	6	1	1	1	1
Number observations	2	2	NA	NA	NA	NA
Number parent questionnaire responses	54/256	85/358	NA	NA	NA	NA

FSM: free school meals; NA: not applicable.

<sup>a</sup>Figures taken from government website <https://www.compare-school-performance.service.gov.uk/> for 2018–19.

<sup>b</sup>UK average = 15.4%.

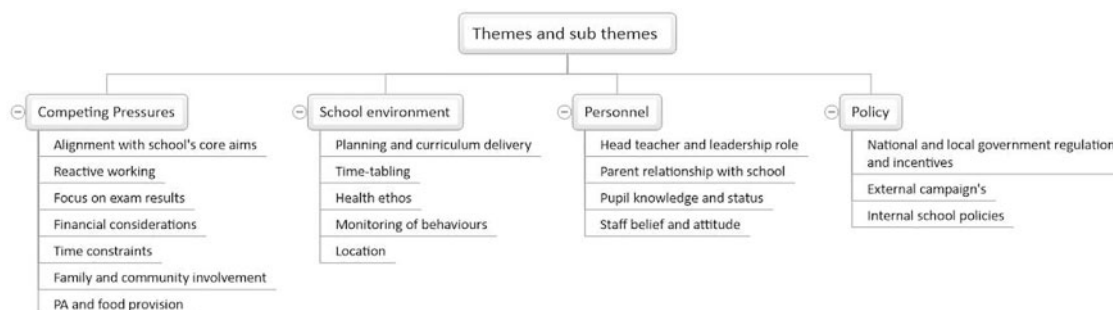


Fig. 1: Themes and sub themes

However, it was accepted that, not prioritizing health promoting behaviours could negatively impact student's future health outcomes.

*'But we're setting up problems for an awful long time in the future...'* (Staff, CS1)

They also discussed the need to set targets for pupil's academic outcomes and it was difficult to quantify the impact of diet and PA behaviours, acknowledging that it was unlikely to directly affect their targets.

*'... I think they are extremely important but... because the effects are not measurable or quantifiable, I think they fall by the wayside and it would almost be impossible I think to prove that any kind of resource or input into diet and exercise would be having a positive effect on outcomes and behaviours because actually that's what we are really measured on, isn't it?'* (Staff, CS2)

Staff described there not being enough hours to devote to supporting health behaviours and although PSHE (Personal, Social and Health Education, is part of national curriculum) lessons can be used to address healthy diet and PA behaviours, there are many other topics to address in these lessons so they are addressed in a tokenistic way.

*'There's always more that you can do but it's time to fit it all in with everything else, isn't it?'* (Staff, CS2)

*'...the actual amount of time we teach them about food and things like that is probably restricted to about four or five weeks in Year 8 because when you look at the massive list of things that they've got to cover, that's the amount of time that we can actually spend on it...'* (Staff, CS1)

Reduced budgets were identified as having a significant effect resulting in an inability to purchase new equipment and job losses, meaning teachers were under increased pressure to deliver an already stretched curriculum.

*'our school is prioritising a lot of different things for budget because it's so tight at the moment...'* (Staff, CS2)

Additionally, CS2 is a Private Funded Initiative school (the UK Government used Private Funded Initiatives from private companies to fund public services and infrastructure for schools and hospitals), and an independent company, who owns the school buildings, provides services such as the canteen, maintenance and cleaning meaning the school has little say on what is provided.

*'Yes. It's a battle. We do have lovely buildings...We don't have the control...They are a commercial company, they want to make money and that's the only area [canteen] really they can make a lot of money if they did it properly, so therefore they'll put in things that sell.'* (Staff, CS2)

Staff also described minimal engagement with the wider community with activities with local sport clubs or teams being the only identified community contact. However, staff felt that there was more that could be done to engage parents and the community in supporting pupil's health but could not conceive what this would look like.

*'... I couldn't give you an answer as to what it is but I do feel like there could be something more with the community, more with families, more with different agencies...'* (Staff, CS2)

The provision of food in schools was a significant focus of the conversations, with an identifiable tension between the school leaders, staff, parents and the canteen. Both schools had an external canteen provider, and staff were aware that the canteen was run as a business with a need to make money, and related this to the options that were available. This was also the case with schools that had internal catering, where people spoke

about the need to make money from the canteen, especially since they had become an academy.

*'The kitchen, we can't have input into it, because it is a business... it's got to make money. They'll sell things that the kids are going to buy.'* (Staff, CS2)

*'Xxx [catering provider] is making money off our children and so have no reason to offer a balanced diet.'* (Parent, CS2)

The cost of food in the canteen was also identified as a barrier by staff and parents who recognized that the healthy options were more expensive and therefore less accessible to some students.

*'You can push for it and you can advise... but the healthier something is, generally the more expensive it becomes, and there's another obstacle.'* (Staff, CS2)

*'School dinners... Provide cheaper healthy options. A piece of fruit costs more than a cake...'* (Parent, CS1)

Canteen managers identified that menus were decided by company headquarters, they also identified that the food was compliant with government foods standards although parents had clearly questioned this:

*'...the perception of parents in particular is that sometimes those food options are not necessarily healthy even though they actually do comply with the government nutritional requirements so there's a slight tension there.'* (Staff, CS1)

During canteen observations, the majority of students used the 'grab and go' areas to purchase food, which was mainly high-carb foods with only a small provision of fresh fruit and vegetables. There was a wide choice of sugary drinks with CS2 also having a Slushy machine; water was available; however, the students needed to bring their own container. Both schools identified that the new criteria for government FSMs meant less students were eligible and this had a real impact on some students (in April 2018, the UK Government introduced a new Universal Credit system; it adjusted the household income threshold for those eligible for FSM):

*'...on rare occasions we've had one or two [students] scavenging out of the bins.'* (Staff, CS1)

The majority of staff felt that the food provision could be improved and most staff did not eat in the canteen.

*'I would certainly change the canteen and what they could offer... The very snacky things and the restrictions on that and stopping the students being able to just*

*go and buy a pudding and those sorts of things...'* (Staff, CS2)

The parent survey highlighted that there was a need for the schools to provide healthier, affordable options and to restrict the less healthy options, this was echoed in our conversations with students.

*'By not selling junk food! Xxx sells slushies, pizza slices and waffles. It's the staple diet of many kids... It's crazy that the school promotes this junk.'* (Parent, CS2)

## School environment

Teachers highlighted that secondary schools plan and deliver education compartmentally with departments working in isolation often with no knowledge of how other subjects are approaching lifestyle topics.

*'I wouldn't be able to tell you on the PHSE side of things what goes on in that curriculum... I don't know. I haven't heard of it.'* (Staff, CS2)

The school timetable was also believed to impact how students were able to access healthy choices; both schools described that breaks had been shortened to accommodate more teaching and deliver lunchtime revision sessions for GCSE students resulting in fewer PA options and increased availability of snacks, which were often less healthy food choices.

*'yes and also the 'grab and go' area it does tend to be a little high carb stuff... there are the... pastry type stuff and pizza again...'* (Staff, CS1)

It was identified that, for the most part, health was approached as an individual issue rather than an ethos or a culture. For instance, obese students or ones with diabetes were signposted to school nurses.

*'... we've had quite a large number of students who are obese, so then we have encouraged them to talk to the school nurse and then we've gone to different agencies like in that way.'* (Staff, CS2)

Observations of food service demonstrated it was quick, noisy and busy with long queues to get the main meal and no evidence of monitoring food choices. There was a divide in opinion regarding who was responsible for the adolescent's food choice in school with staff feeling that this should be done by parents.

*'Well it's difficult to monitor what they are having really and it is down to what the parents allow...'* (Staff, CS2).

However, the majority of parents who responded (see Table 1) felt the school should monitor choices and

have easily accessible systems to support families to monitor what their child was eating.

*'Monitoring my child's lunches is a difficult process. I have to contact reception who contact the cook to hear back and by then unhealthy choices are made already and I feel like a nuisance.'* (Parent, CS2)

The impact of where schools were located and school rules impacted pupil's behaviours, for instance in CS2, the staff described how local fast-food outlets opening at 7 am allowed students to buy unhealthy food on the way to school. This school also allowed 15–16 year olds to leave the school at lunchtime providing another opportunity to purchase unhealthy foods.

*'[name of pasty shop] or whatever it's called, yes, the pasty shop or the chippy. So I'm not entirely happy with it. I have discussed in the past about them not being able to go, but I think because it's been entrenched for such a long time...'* (Staff, CS2)

In CS1, its location impacted the provision of extra-curricular activities as the majority of students are brought in by bus and therefore staying after school to attend clubs was not an option for many students as it relied on parents being able to come collect them.

*'Our issue is that something like 700 kids a day arrive on buses or transport of some description. Hardly any can walk in from the village safely, so most of our kids come on transport... but that means that we can't really offer massive programs of anything after school.'* (Staff, CS1)

## Personnel

Unsurprisingly, head teacher and business manager buy-in was identified as key to setting the health promoting agenda of a school, and having leadership with a personal belief in health promotion was thought to make a difference. There was no sense of a whole-school responsibility to promote healthy behaviours rather it was seen as the role of staff who were identified as having a health aspect to their job.

It was accepted by all staff that health promotion of diet and PA was important for students and was important for students' health now and in the future and that it had to be a whole-school approach.

*'...this has to be a whole-school movement. For it to have a real impact it has to be an ethos, doesn't it? It can't just be one lesson saying oh eat healthily and this is a good diet and stuff, it has to be a real kind of intrinsic part of the school, doesn't it?'* (Staff, CS2)

Some teachers demonstrated a personal belief in leading a healthy lifestyle and described doing what they could to encourage students; however, this was *ad-hoc* in nature. They felt there was more that schools could implement to support students.

*'Basically you are relying on the student making the healthy choice, which is fine, but should we be giving students the option not to make a healthy choice, because really everything that we sell should be healthy or within the realms of healthy...'* (Staff, CS1)

Parents were also mentioned as key in providing students with guidance in making healthy choices and vice versa, parents identified staff as important in educating their child on a healthy lifestyle.

*'Schools should provide education on nutrition throughout the child's time at school'* (Parent, CS2)

Students' lack of knowledge of food was identified by teachers, limiting their ability to make a healthy choice. This was mirrored by parent comments.

*'But also it's surprising how little knowledge some students have got about food, so in terms of like vegetables and things they just don't know what anything is.'* (Staff, CS2)

*'I don't think children understand the calories or the science behind eating the wrong foods to take on board when they are choosing. So not having the options there for junk might be a better option.'* (Parent, CS1)

However, the relationships between the school and parents were limited. Contact with parents was *via* parents' evenings where the focus is on students' educational progress. School events, such as food tastings, were described as having minimal parental attendance with the same interested parents always attending.

*'...we've got nearly 900 students and we had about 24 parents but the opportunity was there (canteen food tasting) ...but quite a lot of the parents that do go there are those that are very concerned about health and they are generally better read and more knowledgeable...'* (Staff, CS1)

One reason suggested for low parental engagement was parents' negative relationship with the school due to their own experiences as an adolescent or concern their child was in trouble.

*'...and with some parents the only contact they get from us is when their child has done something wrong, so their only link to the school is a negative link... And then you have parents that their own experiences of high school were negative as well...'* (Staff, CS2)

Staff described how the socio-economic status of their students' impacted some students' access to healthy choices outside of the school environment, for example, not having had breakfast or there being healthy food options at home:

*'There is definitely a class divide particularly with diets...'* (Staff, CS2)

## Policy

There was discussion of the lack of incentives and regulations from national and local government to promote healthy lifestyles since the discontinuation of the Healthy Schools award (as part of the Healthy Schools Programme, schools were able to apply for a bronze, silver or gold award).

*'...if it could come in to be in Ofsted, you would get everybody on board, because it would be measured. If it was measurable, and the school would get something out of it, I think the schools would take it on board. It's just because the biggest problem at the moment is, and I know a lot of the teachers will tell you, it's about [exam] results, not about children.'* (Staff, CS2)

Although there was an assumption from all staff interviewed that the food provided in the school was compliant with national food standards, when asked, only one member of staff had knowledge of the School Food Plan (Dimpleby and Vincent, 2013). Staff highlighted that schools would not fail an Ofsted inspection if they were not promoting healthy lifestyles behaviours and admitted this meant it was unlikely that it would be a high priority within the School Action Plan (A School Action Plan follows an Ofsted inspection (Section 10) and sets out how the school will address issues raised as part of the inspection.).

*'...it's one of those classics where by in principle it is very important and in practice is probably lower down the priority list than it deserves because of the real politic of the situation. Being blunt ...they [schools] are not going to fail Ofsted because your food isn't quite healthy enough.'* (Staff, CS1)

Neither school had an in-house policy in place regarding the promotion of healthy lifestyles although one staff member mentioned:

*'we've probably got a [food] policy but it's not a live one.'* (Staff, CS1).

Nevertheless, both schools had a ban on fizzy and energy drinks, although it was recognized that this was hard to monitor.

*'From the school I've not really seen much monitoring. I think if a kid is wandering round perhaps with an energy drink, it might get picked up on.'* (Staff, CS2)

However, there was no restriction of the types of food that students could bring into school despite acknowledging that foods with a high sugar content affected the behaviour of students.

*'The effects of those sorts of things on them can be [laughs] quite marked actually...'* (Staff, CS2)

The Jamie Oliver School dinner campaign (Jamie Oliver is a UK celebrity chef who campaigned to improve the quality of food in English secondary schools in 2005) was described as being a catalyst for many of the food changes in schools in the past with staff identifying that food provision had improved as a result; however, they admitted that progress had begun to slip back since the campaign ended.

*'I'm going to be totally honest, I would say that it [school food provision] was probably slightly better... The time when Jamie Oliver did all his food stuff, we joined the Healthy Schools Campaign and the kitchens did it and everything like that and it was really noticeable, we had the brown rice and wholemeal and cut the cheese off everything. But that has definitely gone.'* (Staff, CS1)

## DISCUSSION

The results of this research clearly demonstrate that secondary schools staff and parents recognize that schools have a role to play in supporting young people's health in regard to diet and PA behaviours; however, they identified significant barriers to being able to create a HPS. These barriers include the need to focus on core subjects and funding cuts to non-core subjects, leading to a 'siloed' curriculum delivery and timetable restrictions, reliance on just a few key staff to deliver HPS messages as well as food provision being delivered as a business, often by external companies which meant that, healthy food but more expensive food competed with low-cost calorie dense snacks which canteens knew they could sell. In addition, there was a lack of monitoring of students' choices which resulted in health being seen as a medical issue rather than an ethos for a school.

The WHO HPS framework aligns with the call for a new approach to public health improvement (Davies et al., 2014) and yet with little government policy related to a whole-school approach to encourage healthy diet and PA behaviours, schools in England are unsurprisingly not prioritizing health promotion in these areas



(Bonell *et al.*, 2014). The interplay between lack of policy, educational pressures and the people within the school system limits schools' ability to instigate changes that promote a health-enhancing school culture. Campaigns (such as Jamie Oliver's) can inspire and motivate changes to create a more health promoting ethos but the lack of Ofsted assessment or policy requirement around food and drink provision was cited as a barrier to sustainable change. Similarly, whilst schools are in part aware of the link between educational attainment and health, the policy focus on education and funding cuts to initiatives such as The School Food Plan means that pupil education is the main priority. Health promotion initiatives were left to individual interested staff and delivered in the relevant curricula, e.g. Physical Education (PE), Personal, social, health and economic (PHSE) (Langford *et al.*, 2015a). These, coupled with funding constraints, a focus on educational outcomes and restrictive school timetables, are possible explanations for why schools find it difficult to implement such an approach (Langford *et al.*, 2017; Brown *et al.*, 2019). Research suggests that public health professionals need to work in partnership with schools, families and community groups in order to support the creation of a HPS culture (McHugh *et al.*, 2020). With the majority of schools in England now being academies, engaging and supporting head teachers and business managers to motivate them to create a whole-school healthy culture within their communities will be key for future initiatives (Mcisaac *et al.*, 2016; Jessiman *et al.*, 2019; Huse *et al.*, 2020).

Earlier research has shown that what schools provide their students' in terms of food and extra-curricular PA opportunities can have a real impact on the health culture within a school (McHugh *et al.*, 2019). This research suggests that PA provision and opportunities to be active were easier for schools to provide compared with healthy food provision. The need for school food provision not to make a financial loss and given that unhealthy foods are, for the most part, cheaper and have higher profit margins than fresh healthy choices, makes it a challenge for school canteens to offer more expensive healthy options that might not sell. This is further exacerbated when schools have outsourced their canteen provision to private companies. Given the known association between economic disadvantage and obesity (Mohammed *et al.*, 2019) and that school meals are free for students from low-income families, incentives and support for schools to only provide healthy foods would be an important step in reducing health inequalities.

Whilst case studies are limited in generating findings, which are generalizable to broader contexts, they can

generate new ways of thinking about an issue, such as creating health promoting secondary school environments, which are transferable. We suggest that the process of identifying and responding to the barriers school staff, pupils and their families face, and understanding how policy impacts on school ethos and practice, is a necessary condition for schools to develop context-specific ways of responding to the challenges globally.

Future research needs to work with policy makers, schools and their communities to develop policy to support schools and communities to develop ways to minimize unhealthy options, values and support healthy diet and PA choices to create a culture where making a healthy choice is accessible and easy.

## ETHICS

Ethical approval was granted by the University of Exeter Medical School ethics committee, Certificates: 286617/010518.

## ACKNOWLEDGEMENTS

The authors thank Alison Hurst for her technical help.

## FUNDING

Funding to pay the Open Access publication charges for this article was provided by All Saints Education Trust (ASET) who fund CMC's fellowship supported this work. S.L., J.L. and K.W. are fully or partially supported by the National Institute for Health Research Applied Research Collaboration South West Peninsula. The views expressed in this publication are those of the authors and not necessarily those of the National Institute for Health Research or the Department of Health and Social Care.

## REFERENCES

- Bonell, C., Humphrey, N., Fletcher, A., Moore, L., Anderson, R. and Campbell, R. (2014) Why schools should promote students' health and wellbeing. *BMJ*, 348, g3078.
- Braun, V. and Clarke, V. (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77–101.
- Brown, T., Moore, T. H. M., Hooper, L., Gao, Y., Zayegh, A., Ijaz, S. *et al.* (2019) Interventions for preventing obesity in children. *Cochrane Database of Systematic Reviews*, 7, CD001871.
- Browne, S., Barron, C., Staines, A. and Sweeney, M. R. (2020) 'We know what we should eat but we don't . . .': a qualitative study in Irish secondary schools. *Health Promotion International*, 35, 984–993.



- Davies, S. C., Winpenny, E., Ball, S., Fowler, T., Rubin, J. and Nolte, E. (2014) For debate: a new wave in public health improvement. *The Lancet*, **384**, 1889–1895.
- Department for Education (2010) The importance of teaching: the schools white paper. <https://www.gov.uk/government/publications/the-importance-of-teaching-the-schools-white-paper-2010> (last accessed 15 December 2019).
- Dimbleby, H. and Vincent, J. (2013) The School Food Plan. [https://www.schoolfoodplan.com/wp-content/uploads/2013/07/School\\_Food\\_Plan\\_2013.pdf](https://www.schoolfoodplan.com/wp-content/uploads/2013/07/School_Food_Plan_2013.pdf) (last accessed 15 December 2019).
- Hanlon, P., Carlisle, S., Hannah, M., Lyon, A. and Reilly, D. (2012) A perspective on the future public health: an integrative and ecological framework. *Perspectives in Public Health*, **132**, 313–319.
- Hanlon, P., Carlisle, S., Hannah, M., Reilly, D. and Lyon, A. (2011) Making the case for a ‘fifth wave’ in public Health. *Public Health*, **125**, 30–36.
- Ho, F. K., Celis-Morales, C. A., Gray, S. R., Katikireddi, S. V., Niedzwiedz, C. L., Hastie, C. *et al.* (2020) Modifiable and non-modifiable risk factors for COVID-19, and comparison to risk factors for influenza and pneumonia: results from UK Biobank prospective cohort study. *BMJ Open*, **10**, e040402.
- Huse, O., Palermo, C., Evans, M. and Peeters, A. (2020) Factors influencing healthy eating and physical activity amongst school staff. *Health Promotion International*, **35**, 123–131.
- Jessiman, P. E., Campbell, R., Jago, R., Van Sluijs, E. M. F. and Newbury-Birch, D. (2019) A qualitative study of health promotion in academy schools in England. *BMC Public Health*, **19**, 1186.
- Langford, R., Bonell, C., Jones, H. and Campbell, R. (2015a) Obesity prevention and the Health Promoting Schools framework: essential components and barriers to success. *The International Journal of Behavioral Nutrition and Physical Activity*, **12**, 15.
- Langford, R., Bonell, C., Jones, H., Poulou, T., Murphy, S., Waters, E. *et al.* (2015b) The World Health Organization’s Health Promoting Schools framework: a Cochrane systematic review and meta-analysis. *BMC Public Health*, **15**, 1–15.
- Langford, R., Bonell, C., Komro, K., Murphy, S., Magnus, D., Waters, E. *et al.* (2017) The Health Promoting Schools Framework: known unknowns and an agenda for future research. *Health Education & Behavior*, **44**, 463–475.
- Mchugh, C., Hurst, A., Bethel, A., Lloyd, J., Logan, S. and Wyatt, K. (2020) The impact of the World Health Organization Health Promoting Schools framework approach on diet and physical activity behaviours of adolescents in secondary schools: a systematic review. *Public Health*, **182**, 116–124.
- Mchugh, C. A., Anderson, L., Lloyd, J., Logan, S. and Wyatt, K. (2019) Influences on diet and physical activity choices of 11–13-year-olds in a school setting. *Health Education Journal*, **78**, 545–556.
- Mcisaac, J.-L., Hernandez, K., Kirk, S. and Curran, J. (2016) Interventions to support system-level implementation of health promoting schools: a scoping review. *International Journal of Environmental Research and Public Health*, **13**, 200.
- Mohammed, S. H., Habtewold, T. D., Birhanu, M. M., Sissay, T. A., Tegegne, B. S., Abuzerr, S. *et al.* (2019) Neighbourhood socioeconomic status and overweight/obesity: a systematic review and meta-analysis of epidemiological studies. *BMJ Open*, **9**, e028238.
- National Audit Office (2018) Converting maintained schools to academies. <https://www.nao.org.uk/wp-content/uploads/2018/02/Converting-maintained-schools-to-academies.pdf> (last accessed 15 December 2019).
- NHS Digital (2019a) Statistics on Obesity, Physical Activity and Diet, England. <https://digital.nhs.uk/data-and-information/publications/statistical/statistics-on-obesity-physical-activity-and-diet/statistics-on-obesity-physical-activity-and-diet-england-2019> (last accessed 15 December 2019).
- NHS Digital (2019b) National Child Measurement Programme England. <https://digital.nhs.uk/data-and-information/publications/statistical/national-child-measurement-programme/2018-19-school-year> (last accessed 15 December 2019).
- Ofsted (2019) School inspection handbook. <https://www.gov.uk/government/publications/school-inspection-handbook-eif> (last accessed 15 December 2019).
- The World Health Organisation (2014) Increasing fruit and vegetable consumption to reduce the risk of noncommunicable diseases. [https://www.who.int/elena/titles/bbc/fruit\\_vegetables\\_ncds/en/](https://www.who.int/elena/titles/bbc/fruit_vegetables_ncds/en/) (last accessed 5 December 2019).
- The World Health Organisation (2015) Guideline: sugars intake for adults and children. <https://www.who.int/publications/i/item/9789241549028> (last accessed 15 December 2019).
- The World Health Organisation (2018) Physical activity. <https://www.who.int/news-room/fact-sheets/detail/physical-activity> (last accessed 5 December 2019).
- The World Health Organisation (2020) Obesity and overweight-key facts. <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight> (last accessed 5 December 2019).
- Tong, A., Sainsbury, P. and Craig, J. (2007) Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*, **19**, 349–357.
- UK Government. (2015) School meals – healthy eating standards. <https://www.gov.uk/school-meals-healthy-eating-standards> (last accessed 28 May 2020).
- Yin, R. K. (2017) *Case Study Research and Applications: Design and Methods*. Sage Publications, California, USA.